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NOTES ON FUNGI II. WITH NEW SPECIES FROM VARIOUS LOCALITIES.

P. L. RICKER.

The type species unless otherwise designated are in the author's herbarium.

SPHAEROPSIDALES.

PHYLLOSTICTA AMPHIPTERYGII Ricker n. sp. — Spots subcircular, light-brown, 2-8 mm. in diameter, often confluent, with a slightly raised dark reddish brown margin; pycnidia scattered, black, epiphyllous, 55-80μ diam.; sporules oblong, often inequilateral, hyaline, bi-guttate, ends acute, 2.5-3 x 8-10μ.

On Amphipterygium amphifolium Hemsl. & Rose. Type specimen in the U. S. National Herbarium, collected by J. N. Rose and Jos. Painter, near Guadalajara, State of Jalisco, Mexico, Sept. 28, 1903.

USTILAGINALES.

TILLETIA ERAGROSTIDIS Clinton & Ricker n. sp. — Sori in ovaries, ovate to oblong, $\frac{1}{2}$-$\frac{3}{4}$ mm. long, infecting only a part of the flowers but showing quite conspicuously; spores globose to subglobose, dark brown, with regular reticulations (2.8-4.5μ projecting as a lighter zone 2.5-3μ), 25 37μ in diameter.

On Eragrostis glomerata (Walt.) Dewey. Type specimen 8841 S. M. Tracy, Yazo City, Miss., Sept. 8, 1904.

USTILAGO BROMIVORA F. de W. Specimens of Brachypodium distachyon R. & S. were recently examined, which were badly infected with a smut which proved to be an Ustilago. The characters and measurements agree in every way with this species and as the host is closely related to Bromus it seems best to refer the smut to the above species. Specimens collected by A. Letourneux, Mariut, Egypt, March 3, 1878.

USTILAGO DUTHIEI Ricker n. sp. — Sori in spikelets, infecting ovaries, which are scarcely larger than normal, inconspicuous until ruptured, spore mass olive brown; spores golden brown, ovoid to subspherical, 8-12μ diam.

On Andropogon bladhii Retz. Type specimen No. 7699, J. F. Duthie, Denra Dun, India, Oct. 22, 1888.

A large number of smuts have been described on Andropogon but the above material does not seem to agree well with any of them described under Ustilago, using as a basis for the genus the characters outlined in Clinton's recent montograph. Neither do the spore measurements agree well with the species referred to other genera. It is difficult to tell without examining material whether they have been properly referred or not. An examination of authentic material may reduce the above spcies to synonomy.

USTILAGO SIEGLINGIAE Ricker n. sp. — Sori in ovaries, ellipsoid, 3-4 mm. long, infecting most of the spikelets and showing conspicuously through the florets; spores elliptical to subglobose, reddish brown, at first appearance smooth walled, but on closer examination are apparently closely and minutely echinulate, 4-6μ diam.

On Sieglingia purpurea (Walt.) Kuntze. Type specimen collected by A. S. Hitchcock, Punta Rassa, Fla., July to August, 1900.

This species is most nearly related to U. triplasidis E. & E., but has constantly smaller spores.

USTILAGO STRUMOSA Cke. On the last of June, 1904, Mr. W. R. Maxon collected portions of a bamboo on the slopes of Monkey Hill, Jamaica, bearing a fungus growth about ¼-½ inches in diameter, somewhat oppressed and closely resembling a small Scleroderma externally. Unfortunately no fruit was collected, but the host was supposed to be Chusquea or Arthrostylidium. The host index failed to reveal anything suggestive of our specimens and after searching the literature of the Gasteromycetes it seemed that they might possibly be referred to Milleria Peck or Testicularia Klotzsch which is an older name, it having been first placed in the Gasteromycetes and later among the smuts. Since the material is abundant in the above locality Mr. Wm. Fawcett, Director of the Hope Garden, was able to inform us that the host was Chusquea abietifolia Griseb. It happens that Ustilago strumosa Cke. is the only fungus reported on the host and it seemed hardly worth while to look up the description, but curiosity as to what kind of an Ustilago could be found on a bambo led me to look up the description in Grevilliea, 9:98, 1881, and much to my surprise it was found to fit our specimens perfectly, which caused material to be sent to Dr. Clinton, who informed me that the species was undoubtedly a sclerotium belonging to Brefeld's genus Ustilaginoidea. The above species should then stand for the present as USTILAGINOIDEA STRUMOSA (Cke.) Clint. n. n. The sclerotia probably belong to some ascomycetous fungus. Mr. Fawcett has been kind enough to supply the author with additional sclerotia with which it is hoped to obtain the mature stage by cultivation.

TOLYPOSPORIUM GLOBULIGERUM (Berk. & Br.) Ricker n. comb. Thecaphora globuligera Berk. & Br. in Trans. Linn. Soc. Lond. II, 1:407, 1879. Testicularia leersiae Cornu in Ann. Sci. Nat. VI, 15:273. pl. 14, f. 6-10, 1883. Ustilago leersiae Durieu in Cornu loc. cit. 274 as syn.

Sori in ovaries subglobose or oblong, 1.5-2 mm. long, covered by a greenish, smoth membrane which upon rupturing exposes a black granular spore mass; spore balls black, opaque, globose to oblong and often irregular and angled, firm, composed of many spores, 80-235μ long; spores lighter colored, globose to subglobose, adhering by dark folds in the outer memberane which on separating give the spore an echinulate or tuberculate appearance, 7-12μ diam.

On Homalocenchrus hexandrus (Sw.) Kuntze. Type described from specimen in the herbarium of L. R. Tulasne in the Paris Museum, collected by Letourneux in Algeria, Aug. 1862. Also collected by F. M. Bailey, Brisbane So. Australia; Elihu Hall No. 760, Mumford, Tex., June 8, 1872 and T. H. Kearney No. 41, Mobile Ala., July 5, 1895.

Only the last two collections have been examined but the full descriptions and figures leave no doubt as to the identity of the species. McAlpine, Syst. Arr. Austral. Fungi, 186, 1895, reports Thecaphora inquinans B. & Br. as on the above host but it was originally found on Paspalum and is probably an erroneous determination.

UREDINALES.

PUCCINIA ACTINOMERIDIS Magnus. — This species was described by Dr. Magnus as being found on Actinomeris squarrosa, along the Potomac River near Washington, D. C., Oct. 1897. A careful search of the region during the fall for the last three years failed to reveal any Actinomeris squarrosa, which is now caller Verbesina alternifolia, with rust on any part of the plant. Verbesina occidentalis however is very abundant in the region covered by Dr. Magnus on the trip on which the above was collected and it is usually badly rusted. This fact led me to be suspicious of the determination of the host and of the value of the species. I have not been able to verify this suspicion until recently when Mr. E. W. D. Holway was kind enough to send me some fragments of the flower from type material distributed in Vestergren, Microm. Rar. Select. No. 380. Verbesina alternifolia nearly always has winged achenes which Dr. Magnus' specimen does not have. The material of this collection in the Department Herbarium has been with a lot of undistributed material for some time and not easily accessible, but after hunting over several hundred envelopes it was found. The envelope contained enough of the plant to show that its branches and leaves are opposite which is never the case in V. alternifolia. The material is positively Verbesina occidentalis, the rust on which is considered by most mycologists to be Puccinia verbesinae Schw. Mr. Holway was also of the opinion when he sent me the material that Dr. Magnus' species could not be distinguished from Puccinia verbesinae Schw.

PUCCINIA AELUROPI Ricker n. sp. — Sori amphigenous, mostly hyphophyllous, elliptical or oblong, often confluent; medosporo light yellow, elliptical or oblong, minutely verrucose, pores several and scattered, 22-30μ; teleutospores clavate to elliptical or oblong, apex dark golden brown, rounded, thickened (up to 11μ), lighter below, slightly constricted, 19-25 x 30-54μ; pedicels equaling the spores, hyaline.

On Aeluropus littoralis Parl. collected by Frick, Caucasus Mts., (type); Schrenck, Songoria, China, and on Aeluropus macrostachyus Hack., collected by A. V. Munro, Quetta, N. W. India.

PUCCINIA KREAGERI Ricker n. sp. — Sori hypophyllous, inconspicuous, ferruginous; uredospores globose to subglobose, 22-27μ, very light yellowish or almost colorless, wall thin, minutely verrucose, pores several and scattered; teleutospores oblong-ovate, 16-26 x 33-46μ, constricted at the middle, rounded at the base, yellowish-brown, wall medium thick, apex darker and thickened (up to 8.5μ) rounded or acute; pedicel tinted, short (up to 15μ), fragile, 8-9μ wide.

On leaves of Festuca subulata Trin. (*F. jonesii* Vasey) Type No. 38 F. O. Kreager, Clark Springs, 10 mi. No. of Spokane, Wash., June 26, 1902.

PUCCINIA PARADOXICA Ricker n. sp. — Sori hypophyllous, narrow, linear, inconspicuous, darkening the epidermis above; teleutospores golden brown, symmetrical, elliptical, constricted at the middle, conspicuously verrucose, 22-29 x 33-37μ; pedicel short, hyaline, deciduous.

On Melica smithii (Porter) Vasey. Type collected by C. F. Wheeler, Chatham Station, Mich., August 22, 1900.

The verrucose teleutospores at once distinguish this from any other Puccinia on the grasses.

PUCCINIA PIPERI Ricker n. sp. — Sori hypophyllous, inconspicuous, linear, often confluent, epidermis persistent; uredospores elliptical to subglobose, light yellow, echinulate, 16.5-23 x 23-26μ; teleutospores clavate to cylindrical, golden brown, 22-26 x 53-62μ, apex usually flattened or sometimes rounded, not thickened, wall thin, slightly constricted at middle, covered with longitudinal angles giving a striated appearance; pedicel fragile, short, hyaline.

On Festuca pacifica Piper ined. Type No. 6502 C. V. Piper, Eight dollar Mt., Oreg., June 12, 1904.

At once distinguished from any species reported on Festuca or a related genus by the longitudinal angles and absence of thickened apex of the teleutospore and hyaline pedicel.

PUCCINIA LEPTOSPORA Ricker n. sp. — Sori amphigeneous, mostly hypophyllous, conspicuous; spores golden brown at apex, which is thickened and coronate, gradually becoming lighter towards the pedicel, elongated-clavate, 16-20 x 84-112μ, fragile at base; pedicel very short, hyaline, fragile.

On Trisetum virletii Fourn. Type collected by Dr. C. A. Purpus, Ixtaccihuatl, Mexico, 1903, altitude 7-8000 ft.

Somewhat resembling Puccinia rhamni but at once distinguished from it or any related species by the extremely long narrow teleutospores.

UROMYCES CLIGNYI PAT. & HAR. — On Andropogon schottii Rupr. No. 7, Dr. E. Palmer, Chihuahua, Mex., Aug. to Nov. 1885. On Andropogon hirtiflorus Kth., E. W. D. Holway, Guadalajara, Mex., Oct. 12, 1903; No. 21, T. S. Brandegee, San Francisquito, Mts., Lower Cal., Oct. 18, 1890; On Andropogon liebmannii Hack. No. 227, Dr. E. Palmer, Mexico, without further data.

The material here referred was at first taken for a good new species. I am however indebted to Mr. E. W. D. Holway for data regarding the type which he has examined. The uredospores in the description are immature teleutospores. The following characters are drawn from the above specimens:—

Sori hypophyllous, linear to oblong or oval, $\frac{1}{8}$-$\frac{1}{4}$ x $\frac{1}{4}$-1 mm., dark brown, thickly scattered but seldom confluent, tardily naked, giving the surrounding epidermis a light reddish tinge; uredospores globose or subglobose, 22-29μ, light yellowish, echinulate, wall medium; teleutospores dark brown, globose to subglobose, 22-31μ; wall thick (up to 5μ) smooth; pedicel hyaline, flexuous, equaling or slightly longer than the spore, 2-6μ wide, often forming a prominent rounded enlargement at the base of the spore or gradually tapering to the end.

But very few perfect sori can be found, the larger part of them being thoroughly infested with Darluca filum (Biv.) Cast., so that no spores or only fragmentary or immature ones remain in the sorus. This seems to be the case with a large number of tropical and subtropical grass rusts examined recently. In many of them so infected careful search fails to reveal anything more than a few uredospores, and they often in very poor condition. But for this parasite either a large number of additional grass hosts for some species of rust or else several new species of rusts might be easily determined.

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